DOCUMENT RESUME

ED 326 542 TM 015 645

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TITLE A New Approach to Activity Structure Analysis.
SPONS AGENCY Spencer Foundation, Chicago, Ill.
PUB DATE Apr 90
NOTE 49p.; Paper presented at the Annual Meeting of the American Educational Research Association (Boston, MA, April 16-20, 1990).
PUB TYPE Speeches/Conference Papers (150) -- Tests/Evaluation Instruments (160)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Classroom Observation Techniques; Elementary Secondary Education; *Evaluators; *Graduate Students; Higher Education; *Interrater Reliability; *Protocol Analysis; Reliability; *Research Methodology; Validity
IDENTIFIERS *Activity Structures

ABSTRACT

A protocol for analyzing the activity structure of a classroom lesson was developed and field tested. The protocol can be completed on site by a person serving as both observer and analyst. Validity of the protocol was established by reference to the large body of qualitative research on activity structure and the analysis of teaching. The reliability of the protocol was assessed by calculating the percentage of inter-observer/analyst agreement for 47 lessons observed in 24 classes by pairs of observers/analysts. Observers were nine graduate students in the School of Education of a large research university who had received instruction in the activity structure approach. Initial inter-observer agreement ranged from 57% to 96.5%. When added to the percent of agreement that resulted from consensus seeking, overall agreement reached 97.6%. Results of an exploratory analysis of the content level, grade level, and subject area, and the inter-observer agreement indicate the utility of the activity structure analysis for data collection. Two tables and one figure contain information from the study. Appendixes contain: (1) directions for segmenting the lesson and mapping activity structure; (2) the activity structure analysis codebook; and (3) the analysis form. (SLD)

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A NEW APPROACH TO ACTIVITY STRUCTURE ANALYSIS

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Paper Presented at the Annual Meeting of the

American Educational Research Association

Boston, Massachusetts

April 20, 1990

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Abstract

This study describes the development and field testing of a protocol for analyzing the activity structure of a classroom lesson than can be completed, on site, by a trained observer/analyst. Validity was established by reference to the large body of qualitative research on activity structure and the analysis of teaching. Reliability of the prototype protocol was assessed by comparing independent analyses of 47 lessons made by pairs of observer/analysts. Results of an exploratory analysis of the relationship between context variables, grade level, and subject area--using data gathered with the protocol--are also presented.

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A NEW APPROACH TO ACTIVITY STRUCTURE ANALYSIS[1]

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Activity structure analysis has gained renewed interest as a means for challenging the persistent misconception that effective teaching behaviors are generic, rather than "context bound" (Stodolsky, 1984b, 1988). While many researchers and reviewers of research have been careful to report that some or all of the so-called "effective teaching behaviors" were or might prove to be limited in their generalizability by context variables such as grade level, subject matter, and student characteristics (e.g., Berliner, 1983; Brophy, 1979; Doyle, 1977, 1986; Evertson & Green, 1986; Gage, 1978, 1979; Herbert & Attridge, 1975; Medley, 1982; Shavelson & Dempsey-Atwood, 1976), teachers are being trained and evaluated using observation and rating instruments that are not grade-level, student population, or curriculum specific (see for example Holzkom, 1987).

The purpose of this study was to develop and field test a protocol for analyzing the activity structure of a classroom lesson that can be completed by one member of a pool of researchers who serves as both observer and analyst. Previous research on activity structure has separated the roles of observer and analyst and relied on transcriptions of observer field notes to provide data for later analysis by primary investigators.

A pool of nine observer/analysts was trained to observe and script tape a lesson, divide the lesson into activity segments, use a comprehensive set of categories to analyze the key and additional dimensions of each segment, and to make a map of the lesson. Validity of the protocol for segmenting a lesson and analyzing each segment was established by reference to the large body of qualitative work on classroom activity structure. Reliability of the prototype protocol was assessed by calculating the percent of inter-observer/analyst agreement on lesson segmenting and segment analyses for 47 lessons. Proposed changes in the protocol, as field tested, are presented based on a qualitative study of the differences between the paired observer/analysts in their segment maps and segment analyses and their written records of their attempts to adjudicate differences in a post-observation consensus-seeking conference. The 47 lesson descriptions are used in an exploratory examination of the relationship between a variety of context variables, at four grade levels, and in four subject matter areas.

Activity Structure Analysis

The concept activity structure dates back to qualitative research done in the 1960s and 70s by Barker (1968); Barker and Gump (1964); Barker, Gump, Friesen, and Willems (1970); Doyle (1977); Grannis (1978); Gump (1967, 1974); and Kounin (1970). The concept has more recently been developed and applied by Berliner (1983), Doyle (1986), Leinhardt and Greeno (1986), and Stodolsky (1981, 1983, 1984a, 1984b, 1988). An activity structure approach is an attempt to describe the

behavior setting in a particular classroom at a given point in time. The focus is on describing the ecological environment, rather than just the behavior of the teacher and/or selected students. The classroom as an ecological environment, or behavior setting, includes: the physical setting (location, furniture, materials, etc.) and the behavior patterns of the teacher and students as they interact with one another and the physical setting.

An activity segment is a meaningful division of a classroom behavior setting that has a time-space focus. (An example of a non-meaningful division of a classroom behavior setting would be to select, arbitrarily, each two-minute segment of a lesson as the unit of analysis.) As defined by Gump (1967), the key dimensions of an activity segment are: subject matter, spatial location, group size, instructional format, and materials. One activity segment ends and another begins when there is a change in two or more of these five key dimensions. Another convention established by Gump (1967) is that an activity segment has a duration of at least two minutes.

Activity segments can be described along any number of additional dimensions such as: duration, control of pacing, pupil activity, feedback to students, expected interaction between students, and cognitive level of intended student outcomes (e.g., responses or products). While each activity segment has a time and space boundary, it can occur singly or simultaneously within a given classroom (Gump, 1967). In a single segment everyone in the classroom is engaged in the

same behavior setting. An example of a single segment would be the whole class listening to the teacher lecture. By contrast, a parallel segment is one of two or more segments that overlap or occur simultaneously. A familiar example of parallel segments is when the teacher is working with a small group doing directed reading at the front of the room (segment "1") while the rest of the students are at their desks completing worksheets (segment "2").

Segments can be further categorized into undifferentiated and contained segments (Gump, 1967). An undifferentiated segment is one that cannot be meaningfully divided into contained segments. A contained segment is one of a temporal series of two or more segments where each segment differs from the others in the series by changes in the two key dimensions of materials and instructional format, but not by changes in the other key dimensions of subject matter, group size, or location. For example, the beginning of a new contained segment would be signaled when the teacher continues with the same group of children (whole class or subgroup), in the same location, in the same subject area, but switches from discussing a filmstrip as it is shown to monitoring students as they complete a written assignment.

Gump (1967) developed a procedure for mapping the activity structure of a classroom behavior setting. As shown in Figure 1, an activity structure map allows one to visually represent the structure of a given lesson in terms of the number and type of segments (parallel, contained, etc.), as

well as a notation of the duration, spatial location, and population involved in each of the segments.

In the pioneering activity structure study by Gump (1967), and the more recent work by Stodolsky, the methods used for data collection were labor intensive and ultimately involved the post hoc judgments of one or more analysts, who had not observed the lesson, to divide the school day/lesson into activity segments and to develop categories to describe the dimensions of each segment. In Gump's study of the third grade, an observer sat in the classroom and dictated a detailed narrative (a "classroom chronicle") into a Stenomask attached to a portable recorder. The recorded description was then transcribed in full and used, along with time-lapse photographs, as the basis for a qualitative analysis of the total classroom environment by the primary researcher, who had not witnessed the behavior setting first hand.

Stodolsky (1981, 1983, 1984a, 1984b, 1988) employed a similarly labor intensive technique to obtain activity structure analyses of math and social studies lessons in the fifth grade. One of eleven field workers observed a lesson and "wrote open narrative notes on the activities and setting. The notes were subsequently rewritten on standard activity structure form" (1988, p. 23). Each activity structure record was later read by Stodolsky and a graduate assistant who identified the activity segments (using conventions developed by Gump in 1967) and "for each instructional segment, [they] coded fifteen activity segment properties (or features), the kinds of materials used by students and teachers, the

participants in the segment, and related information" (1988, p. 26).

Method

Overview. What is missing in the literature is a labor efficient, yet reliable and valid, methodology that can be used by one member of a pool of trained observer/analysts to collect and analyze data on the activity structure of a given lesson. In this study we developed and field tested a protocol for observing in classrooms and describing the context of teaching that does not require the transcription of detailed narratives and subsequent qualitative analysis by one or more researchers who have not observed the lesson. Building on the body of qualitative research on activity structure and the analysis of teaching by Dunkin and Biddle (1974), Grannis (1978), Gump (1967), Herbert (1967), Kounin (1970), and Stodolsky (1983, 1984b), a prototype protocol was developed that included procedures and materials for training a pool of observer/analysts to observe and script tape a lesson; divide the observed lesson into activity segments; "map" the structure of the lesson; classify each segment as to type (single, contained, etc.); and analyze each segment using precoded categories for the key and additional dimensions that together describe the context of teaching.

Since the purpose of the study was to field test the protocol--to assess its feasibility as a research tool and, if warranted, to make changes consistent with improved future applications--each of the 47 lessons to be analyzed was observed by two trained observer/analysts, each of whom made

an independent analysis. In a post-observation consensus-seeking conference, the two observer/analysts made a detailed record of their initial areas of disagreement, their thinking in attempting to adjudicate their differences, and their final decisions. In this way a lesson description was obtained that reflected the consensus of two observer/analysts, along with a written record of how differences were resolved (with an emphasis on how the protocol might be changed to improve reliability and validity in future applications) and data that could be used to measure the reliability of results obtained when the protocol was used by two observer/analysts.

Selection and training of observer/analysts. A pool of nine "experts"--all graduate students in the School of Education of a large, research university--was recruited to receive training in activity structure analysis and to make classroom observations. The nine observer/analysts had previously received 19 hours of instruction on "effective teaching behaviors" and practice in script taping (Hunter, 1983) videotaped lessons and arriving at summative evaluations on an instrument based on the effective teaching research. While this training was not directly utilized in the present study, it did provide a background of experience in observing lessons, making detailed script tapes, and analyzing script tapes for types and patterns of teacher and student behavior.[2] The nine observer/analysts subsequently received seven hours of instruction on the activity structure approach to describing lessons, including specific instruction and

practice (using videotaped lessons) with the materials and procedures that were to be used in the field.

Observation sites. Data were collected in 24 different classrooms in one school system (Chapel Hill-Carrboro City Schools) over a period of six weeks. The 24 volunteer teachers submitted weekly teaching schedules and were notified in advance of each observation session. Three observations were scheduled in each of four subject areas (mathematics, reading/language, science, and social studies) at four grade levels (5 - 8), for a total of 48 lessons. (Only 47 lessons were actually observed because one eighth grade/social studies teacher made a last minute cancellation.)

Materials. The materials used in the training sessions and in the field were developed specifically for this project using decision-making conventions and findings from earlier qualitative studies. The "Directions for Segmenting Lessons and Mapping Activity Structure" (see Appendix A) followed the conventions established by Gump (1967). The dimensions (variables) and precoded categories in the "Activity Structure Analysis Codebook" (see Appendix B) were taken primarily from the work of Gump (1967) with significant additions and modifications suggested by the work of Dunkin and Biddle (1974), Grannis (1978), Herbert (1967), Kounin (1970), and Stodolsky (1983, 1984b). One departure from the studies by Gump and Stodolsky was the inclusion of codes for both the major and the secondary location of students, instructional format, pacing, pupil activity, materials, and expected student interaction. This major/secondary distinction

provided the observer/analysts with a means to discriminate between what most of the students were doing in a segment (e.g.,"listen to oral reports") from what a minority were doing (e.g., "give oral report") or to record a change in only one dimension of a segment (such as a change in instructional format from teacher-led recitation to discussion)--or one that lasted for less than two minutes--and to indicate which dimension category accounted for the greater amount of segment time.

Classroom observations. Each of the 47 lessons was observed by a pair of observer/analysts; the pairings were varied from observation to observation to maximize the number of different pairing across the four grade levels and four subject areas. The two observers sat at the rear of the classroom, on opposite sides, and did not communicate with one another during the lesson. Each made a detailed script tape of the behavior setting that included frequent notations of the time (using a small, digital clock).

Activity structure mapping and segment analyses. Sometime after leaving the observation classroom, each observer/analyst worked independently to divide the lesson into activity segments; the result of this segmenting decision was recorded by creating an "activity structure map" of the lesson. The observer/analyst's second independent task was to complete an "Activity Structure Analysis Form" (see Appendix C) for each segment in the lesson, using the precoded categories in the "Activity Structure Analysis Codebook."

Consensus-seeking conferences. Following each observation and the independent completion of an activity structure map and an analysis form for each segment, the two observer/analysts met for approximately one hour to compare their maps and segment analyses and attempt to adjudicate differences where possible. Each pair was responsible for constructing a written record of the consensus-seeking conference that included: an enumeration of all areas (including specific items on the analysis forms for each segment) of initial disagreement, the adjudicated decision for each item in dispute, and an open-ended comment about their thinking in attempting to reach consensus on each item. The observer/analysts were specifically instructed not to "bargain" to get agreement; that is, not to say "I'll go with you on 'instructional format' if you'll buy into my 'materials'." Consensus was not to be forced; any resolution of differences was to reflect a genuine reconsideration on the part of one or both observer/analysts. The observer/analysts were also encouraged to make any additional written comments--asides, questions, or suggestions--to the primary investigator on any aspect of the observation/analysis process.

Follow-up training sessions. Because the goal was to develop and refine a new methodology, a series of three 60-90 minute meetings (for a total of four hours) was held with the members of the observer/analyst pool over the course of the six weeks that they were in the field. During these sessions, the observer/analysts were encouraged to bring up issues and problems encountered in making an independent analysis of an

activity structure and in adjudicating differences with a peer. This time was also used to bring up recurring problems or questions that had surfaced on the notes from the "consensus-seeking conferences" turned in to the primary researcher since the last training session. As a result of these group problem-solving meetings, procedures and precoded categories were made more explicit or revised. A revised "Activity Structure Analysis Codebook" was distributed at the end of the mid-point of the data collection phase that reflected group decisions on refined category descriptors and additional categories for several of the key and additional dimensions to reduce the need to use the "Other: [explain]" category code.

Findings

Overview. Since the goal of the research was to develop a methodology for reliably describing the context of teaching that could be used by a pool of trained "experts," the findings of most interest had to do with the extent to which the pairs of experts agreed in their independent analyses of the activity structure of a lesson using the prototype protocol. A second task was to analyze the open-ended notes from the consensus-seeking conferences to look for patterns of differences and rationales for problem resolution that could be used to make informed changes in the procedures and segment dimension codes for future use.

The "Activity Structure Analysis Codebook" reproduced in Appendix A includes the modifications made after analyzing all of the written records from the consensus-seeking conferences

at the conclusion of the data-collection phase. The following discussion focuses on the findings regarding the extent of initial observer/analyst agreement and successful adjudication of differences with regard to (1) segmenting and mapping the entire lesson and (2) analyzing each segment.

Segmenting and mapping. For the 47 lessons observed, the pairs of observer/analysts initially agreed on the segmenting/mapping for 24 lessons (51.1%) and disagreed for 23 lessons (48.9%). For those with initial disagreement, consensus was reached in the post-observation conference for 19 lessons (40.4%), but not for the remaining 4 lessons (8.5%).

For the 4 lessons on which agreement was never reached, one was observed early in the data-collection phase and could have been definitively resolved based on the training sessions (viz., five students doing a role play while seven other students watch does not constitute two parallel segments, but rather one segment with major and secondary pupil activities and materials). The segmenting problems in the other 3 unresolved lessons all involved the simultaneous activity of subgroups of students. In 2 or these lessons the teacher was working with one group of students while the remaining students worked independently: in 1 of these lessons some of the "independent" students were doing worksheets while others were working on group projects and in the other lesson some were doing homework while others were taking a make-up quiz or copying missed notes. Thus the cause of the unresolved problem was that the students who were working independently

were engaged in two or three different instructional format/materials configurations and the observer/analysts couldn't agree as to whether this constituted one segment (with major and secondary instructional formats and materials) or parallel segments. An elaborated decision rule during the training phase could have prevented these disagreements.

The fourth unresolved lesson, a fifth-grade math lesson, was truly problematic. The teacher divided the class into two groups; gave overall directions to both groups; and then "ran" back and forth between the groups, joining each group for a total of four times, for from 1 to 18 minutes--making frequent changes in the instructional format and materials with each "visit"--while leaving the other group to work independently at a succession of different tasks. In retrospect, while it is certainly possible to segment this lesson for the purpose of description or analysis (as one observer said, "...we agreed on the substance of the lesson, but we mapped it differently"), I can think of no decision rule that could have been made in advance and included in the training sessions that would have reliable prevented a difference of opinion on how to segment this lesson.

Turning to the 19 lessons for which initial differences were adjudicated, 10 lessons involved differences in designating portions of the lessons as transition or interruption segments, or not (see p.2 of the "Codebook"). In 4 of these 10 lessons, transitions caused the only problem, while 4 lessons involved a disputed transition segment in addition to one or two other points of departure. In

retrospect, the training sessions should have dealt in more detail with the characteristics of "legitimate" transition segments. Interruptions (or not) caused initial disagreement in 2 lessons; in one case the problem had to do with whether or not to record an interruption "of only a few seconds" (since time was recorded in whole minutes, this should not have presented a "problem"), and in the other lesson the question was whether or not to count the continuation of an activity after an interruption (fire drill) as a new segment or not ("not" is correct based on the training materials).

While a variety of problems cause initial disagreement on segmenting in the remaining 9 lessons (including an admitted "oversight" by one observer/analyst), one problem predominated. In 8 of these 9 lessons, one of the observer/analysts failed--when initially mapping the lesson--to take into account that, based his or her own script tape, two key dimensions had changed and thus a new segment had been signaled. In all 8 cases the "missed" change was in instructional format or materials. As one observer/analyst noted, some changes in instructional format are "subtle" and easily missed, such as a change from a "teacher demonstration" to a "teacher-led recitation" in a science lesson. Materials caused problems when there was a changed from "no materials" to "worksheet" (or some other specific material) and this was not conceptualized as a "change in materials." Designating a change in the materials dimension was also problematic when materials were observed in a segment but unused (e.g., textbooks were out on the desks but not employed)--and so,

strictly speaking, there were "no materials" in the segment, and the materials were then actually used in the next segment, thus constituting a change in a key dimension.

Segment analysis. Only those lessons for which the observer/analysts agreed on the segmenting before doing the independent segment analyses could be included in the analysis of agreement on describing the key and additional dimensions of each segment. There were a total of 142 segments (not including 16 transitions and 2 interruptions) in the 37 lessons included in this part of the analysis. For 24 of these lessons the observer/analysts independently agreed on the segmenting and completed the segment analyses forms before the consensus-seeking conference; for the other 13 lessons, the observer/analysts adjudicated minor differences in segmenting before finalizing their independent segment analyses. Thus, of the 47 observed lessons, 10 are excluded from this part of the analysis because the observer/analysis were never able to agree on the segmenting (4 lessons) or, after working out major initial disagreements on the segmenting, they worked together to arrive at a final description of each segment.

Table 1 gives the percent of initial agreement, adjudicated agreement, and lack of agreement for each of 15 dimension variables used to describe each segment, as well as the overall agreement/disagreement. As can be seen, initial agreement ranged from 57% to 96.5%, with an overall average of 78.6%. When added to the percent of agreement that resulted from consensus seeking, overall agreement reached 97.6%. That

is, considering 15 coding decisions for each of 142 segments (or 2130 separate decisions), the "expert" observer/analysts were not able to reach agreement only 2.3 percent of the time.

Discussion

Activity structure analysis has emerged as a a useful tool in describing the context in which instruction occurs and has been used to explore the relationship between context variables and desirable teaching practices. The results of recent studies using this approach have not supported the generalizability of the so-called "effective teaching behaviors" that have influenced the development of teacher evaluation instruments and, by implication, preservice and inservice teacher education programs. This paper described a more time and labor efficient method for collecting data on the activity structure of a given lesson and presented data on inter-rater agreement when the prototype protocol was used by pairs of observer/analysts in 47 lessons.

While this new approach to activity structure analysis is more "quantitative" than that used in earlier studies, it was not the author's intent to takes sides in the "paradigm wars," but rather to agree with Gage (1989) that the "most productive arena [would be one] in which the strengths of all three paradigms (objective-quantitative, interpretive-qualitative, and critical-theoretical) were abundantly realized, with a corresponding decrease in the harmful effects of their respective inadequacies" (p. 9). The lesson segmenting and mapping procedures, the designation of particular variables (dimensions) for focused observation, and the choice of

categories for describing the dimensions were all taken from earlier qualitative studies; this research base was essential in making an argument for the validity of the present study. My purpose in developing a more efficient way to collect data on activity structure--a more quantitative approach, if you will--was to promote the use of activity structure analysis, along with the simultaneous use of other types of analyses of classroom dynamics by a second or third observer in the classroom using qualitative and/or quantitative techniques.

This is not a new idea. In her study, Stodolsky (1984b) used one observer to collect the narrative data on which she subsequently based her activity structure analysis and one observer to collect quantitative data--one observation/recording every 5 seconds on a succession of 8 students--on pupil behavior and task involvement. With the used of a trained observer/analyst to collect data on the activity structure on-site, a second classroom observer could make field notes on other aspects of the behavior setting for later, detailed analysis by the primary investigator. The information gained by using this new activity structure protocol thus becomes an in-depth description of the background, or context, in which variables of more immediate interest can be viewed and studied.

The percent of inter-observer/analyst agreement in independently describing the activity segments was encouraging (78.6% for 15 variables across 142 segments). I would expect even greater agreement between observer/analysts who were trained using the revised "Codebook" (see Appendix B) in

training sessions that focused on analyzing the more "troublesome" variables of instructional format and materials. The finding that agreement reached 97.6% after the consensus-seeking conference would seem to support the assertion that the dimensions and categories "make sense" to experienced educators and that improved training could be expected to lead to higher levels of initial agreement. As in all observational studies using observers and instruments, establishing a high level of inter- and/or intra-rater reliability would be critical to assuring the collection of useful data in future applications of the protocol (Fassnacht, 1982).

More problematic in this study, than the initial agreement on the analysis of segments, was the relatively low level of initial agreement (51.1%) on segmenting the 47 observed lessons. As the trainer of the observer/analyst pool, I take responsibility for some--perhaps most--of this failure. At the beginning of the study, activity structure analysis was as new to me as it was to the graduate students who served as observer/analysts. Knowing what I know now (as a result of my qualitative analysis of the comments made by the observer/analysts in the follow-up training sessions and the notes made during the consensus-seeking conferences), I would put much more training effort--along with more precise decision-making rules, illustrative examples, and practice with videotaped lessons--into identifying "transition segments" and "interruption segments"; dealing with parallel segments in which the students are working independently (but

perhaps at a variety of tasks with a variety of materiáls); and identifying more subtle changes in instructional format and materials. I would also formalize, as part of the thinking process of segmenting a lesson, the step where the analysts asks him/herself: "What--if anything--changed since I last noted the time on my script tape?" and "Does this add up to changes in two of the key dimensions?" I am encouraged to think that modifications in the segmenting part of the training program would improve reliability based on the finding that the pairs of observer/analysts were able to resolve initial differences in all but 4 of the 47 lessons, and that only 1 of these (in retrospect) could not have been anticipated and forestalled with better decision rules and/or illustrative examples.

While the purpose of this study was to develop and field test a protocol for collecting data, a by-product of the study was a set of detailed descriptions of 47 lessons--at four grade levels and in four subject areas--that reflects the consensus of two observer/analysts.[3] Their findings are presented in Table 2.[4] Occupancy time (Gump, 1967; Stodolsky, 1988) is defined as the duration (in minutes) of a segment multiplied by the number of students in the segment. By calculating the percent of occupancy time in each category of each dimension, by grade and subject, one is able to gain an overall picture of how students spend their time in school as a function of subject area and grade level. For example, "student independent seatwork" accounted for 45% of total student time in grade 5/6 mathematics and 31% in grade 7/8, as

compared to 46% in grade 5/6 reading/language and 18% in grade 7/8. This same instructional format accounted for little or no time in social studies or science at any grade level.

The data in Table 2 are based on a small sample of convenience, and thus the findings are only suggestive. But the data set is unique in comparing activity structure across four (rather than two) subject areas and across four (rather than one) grade levels. (To shorten the table, as presented, data are aggregated by grade level, and the "Other" category includes all coded categories that did not accounted for at least 10% of occupancy time in at least one of the four subject areas.)

Finally, activity structure analysis--whether by conventional means or the new approach described in this paper--has utility as a research tool that can be used to increase our knowledge of the context of teaching and how context relates to desirable teaching practices. The approach also has potential as a tool in the training of preservice and inservice teachers by supervisors and mentors who can use it to analyze lessons and provide feedback. This may prove particularly valuable when we are able to be prescriptive as to which activity structures are most effective in a particular subject, grade, or student population--given a clearly stated objective.

NOTES

[1]This study was supported by a one-year grant from the Spencer Foundation.

[2]The author wishes to acknowledge the assistance of two colleagues in the School of Education at the beginning stages of this study. Dr. Kinnard White was the first to direct my attention to the work of Susan Stodolsky when I was searching for a way to "describe, in a comprehensive yet quantitative way, what was going on in a classroom" at the same time that teacher effectiveness was being rated for the purposes of tenure and promotion decisions. Dr. Gary Stuck gave his time to train the observer/analysts for 19 hours on the use of the North Carolina Teacher Performance Appraisal Instrument, as well as generously loaning me copies of videotaped lessons to use in my training sessions on activity structure analysis.

[3]The 45 lessons fall into the following subject/grade categories: Social Studies--5/6 (n=6), 7/8 (n=5); Mathematics--5/6 (n=5), 7/8 (n=6); Science--5/6 (n=6), 7/8 (n=5); Reading/Language--5/6 (n=6), 7/8 (n=6).

[4]The author is particularly indebted to Dr. David Christiansen of the Department of Biostatistics for his many hours of help in creating a SAS data set and then using SAS to analyze the data and produce "camera ready" tables.

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TABLE 1

Percent of Observer/Analyst Agreement on 15 Dimension Descriptions for 142 Segment Analyses for 37 Lessons[a]

Dimension	Percent Initial Agreement	Percent Adjucated Agreement	Percent No Agreement
Location (maj)	93.7	6.3	
Location (sec)	87.3	10.6	2.1
Group Size	82.4	4.9	12.7
Instructional Format (maj)	79.6	16.9	3.5
Instructional Format (sec)	57.0	38.7	4.2
Pacing (maj)	93.7	6.3	
Pacing (sec)	73.2	26.1	0.7
Pupil Activity (maj)	81.7	17.6	0.7
Pupil Activity (sec)	59.2	38.7	2.1
Materials (maj)	74.6	21.1	4.2
Materials (sec)	68.3	28.9	2.8
Feedback	74.6	24.6	0.7
Interaction (maj)	83.1	16.9	
Interaction (sec)	96.5	3.5	
Cognitive Level	74.6	23.9	1.4
ALL**	78.6	19.0	2.3

[a]Does not include transition segments (n=16) or interruption segments (n=2)
[b]Based on 2130 coding decisions (142 segments x 15 decisions)

Table 2. Segment Dimension Categories and Percent Occupancy Time by Subject and Grade

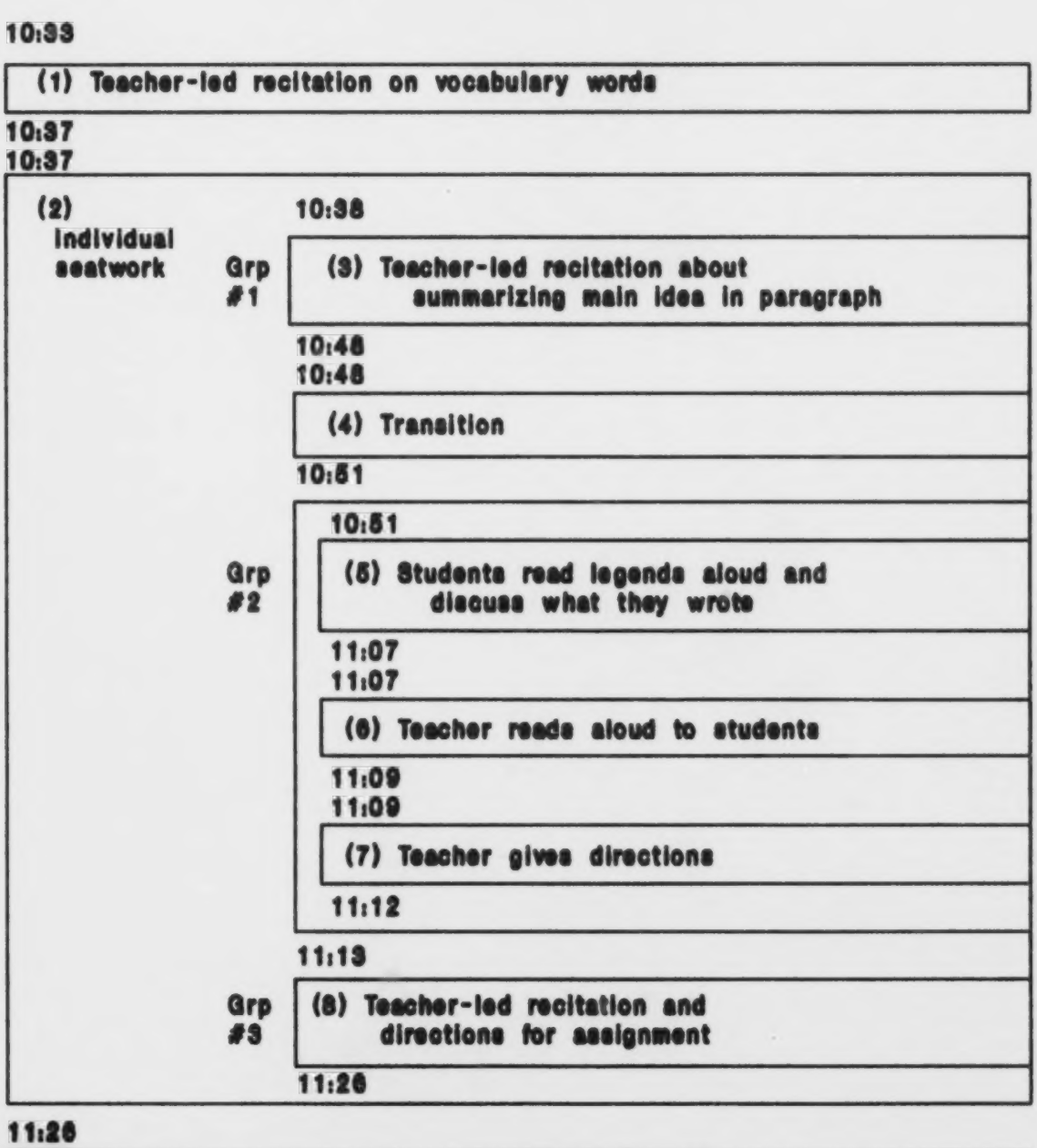
Segment Dimension	Social Studies						Mathematics						Science						Reading/Language					
	5/6			7/8			5/6			7/8			5/6			7/8			5/6			7/8		
	Segment		Occ Time	Segment		Occ Time	Segment		Occ Time	Segment		Occ Time	Segment		Occ Time	Segment		Occ Time	Segment		Occ Time	Segment		Occ Time
	N	%	%	N	%	%	N	%	%	N	%	%	N	%	%	N	%	%	N	%	%	N	%	%
LOCATION (major)																								
D-Individual desks	19	90	87	16	89	81	26	90	98	22	100	100	11	61	70	4	31	43	8	25	51	18	95	99
L-Library	1	5	4	1	6	15	.	.	.	.	.	.	.	.	.	2	15	16	.	.	.	.	.	.
R-Rug (or floor)	.	.	.	.	.	.	.	.	.	.	.	.	1	6	5	.	.	.	9	28	19	.	.	.
T-Community work tables	.	.	.	1	6	4	2	7	1	.	.	.	2	11	4	7	54	41	13	41	26	.	.	.
Other	1	5	9	.	.	.	1	3	1	.	.	.	4	22	21	.	.	.	2	6	5	.	.	.
No agreement	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5	1
INSTRUCTIONAL FORMAT (major)																								
SIS-Student independent seatwork	.	.	.	1	6	2	7	24	45	5	23	31	1	6	3	2	15	4	8	25	46	2	11	18
SOR-Student oral reports	1	5	4	1	6	2	.	.	.	.	.	.	1	6	11	.	.	.	1	3	4	1	5	1
SRE-Student research	.	.	.	1	6	15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
SWS-Student work groups (supervised)	2	10	12	1	6	4	1	3	2	.	.	.	2	11	13	1	8	15	.	.	.	.	.	.
TAV-Teacher-directed audio/visual	.	.	.	2	11	32	.	.	.	.	.	.	1	6	20	.	.	.	.	.	.	1	5	20
TCW-Teacher-directed checking work	1	5	4	.	.	.	3	10	6	6	27	25	.	.	.	1	8	11	1	3	1	.	.	.
TDI-Teacher-led discussion	2	10	11	1	6	2	.	.	.	.	.	.	3	17	8	.	.	.	5	16	12	4	21	30
TFT-Teacher-directed formal test	2	10	5	1	6	14	.	.	.	1	5	2	.	.	.	.	.	.	1	3	1	.	.	.
TGI-Teacher giving instructions	3	14	8	5	28	13	2	7	3	2	9	4	3	17	6	3	23	6	4	13	4	2	11	2
TLG-Teacher-directed learning game	1	5	9	.	.	.	2	7	9	.	.	.	.	.	.	.	.	.	2	6	6	.	.	.
TLV-Teacher lecture (verbal addit.)	.	.	.	1	6	2	.	.	.	2	9	16	1	6	9	1	8	30	1	3	0	2	11	8
TRD-Teacher-led recitation/drill	6	29	30	2	11	10	5	17	10	3	14	16	3	17	24	3	23	26	5	16	24	4	21	12
Other	3	14	17	1	6	3	6	21	18	3	14	6	3	17	6	2	15	7	2	6	1	2	11	6
No agreement	.	.	.	1	6	1	3	10	7	.	.	.	.	.	.	.	.	.	2	6	1	1	5	2
PACING (major)																								
C-Cooperative (student-student)	5	24	28	3	17	13	.	.	.	.	.	.	3	17	13	.	.	.	.	.	.	.	.	.
M-Mechanical (audio/visual)	.	.	.	2	11	32	.	.	.	.	.	.	1	6	20	.	.	.	.	.	.	1	5	20
S-Student (independent)	3	14	13	5	28	35	11	38	51	6	27	33	3	17	19	2	15	18	8	25	46	6	32	27
T-Teacher determined	13	62	59	8	44	20	18	62	49	16	73	67	11	61	47	11	85	82	24	75	54	12	63	52
PUPIL ACTIVITY (major)																								
LA-Listen (watch) audio/visual	.	.	.	3	17	35	.	.	.	.	.	.	1	6	20	.	.	.	.	.	.	1	5	20
LS-Listen to other students	1	5	4	2	11	8	.	.	.	.	.	.	1	6	11	.	.	.	1	3	4	3	16	5
LT-Listen to teacher	5	24	17	7	39	17	7	24	19	9	41	33	6	33	17	6	46	43	9	28	7	4	21	17
PS-Private study	.	.	.	.	.	.	.	.	.	0	.	.	1	6	3	.	.	.	2	6	12	.	.	.
RE-Research	1	5	10	1	6	15	.	.	.	.	.	.	.	.	.	1	8	15	.	.	.	.	.	.
RT-Read textbook	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	6	15	1	5	7
SC-Self-correct work	.	.	.	.	.	.	1	3	4	2	9	9	.	.	.	1	8	11	.	.	.	.	.	.
TC-Talk in teacher-led game	.	.	.	.	.	.	2	7	9	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
TQ-Talk to answer teacher questions	7	33	34	1	6	2	7	24	17	4	18	24	5	28	30	3	23	26	10	31	35	7	37	21
TS-Talk to other students	2	10	7	.	.	.	1	3	2	.	.	.	4	22	18	.	.	.	.	.	.	1	5	5
TT-Take test	2	10	5	1	6	14	1	3	1	1	5	2	.	.	.	.	.	.	1	3	1	.	.	.
WQ-Write answers (quest./prob.)	2	10	14	.	.	.	9	31	47	4	18	25	.	.	.	2	15	4	3	9	7	.	.	.
WR-Write report/story	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	3	12	1	5	10
Other	.	.	.	3	17	8	1	3	1	2	9	8	.	.	.	.	.	.	3	9	7	.	.	.
No agreement	1	5	10	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	5	14

(CONTINUED)

able 2. Segment Dimension Categories and Percent Occupancy Time by Subject and Grade

Segment Dimension	Social Studies						Mathematics						Science						Reading/Language					
	5/6			7/8			5/6			7/8			5/6			7/8			5/6			7/8		
	Segment		Occ Time	Segment		Occ Time	Segment		Occ Time	Segment		Occ Time	Segment		Occ Time	Segment		Occ Time	Segment		Occ Time	Segment		Occ Time
	N	%	%	N	%	%	N	%	%	N	%	%	N	%	%	N	%	%	N	%	%	N	%	%
MATERIALS (major)																								
AV-Audio/visuals (mechanical)	.	.	.	3	17	35	.	.	.	.	.	.	1	6	20	.	.	.	.	.	.	1	5	20
FG-Flat graphics	7	33	41	1	6	4	8	28	23	4	18	23	2	11	6	4	31	56	1	3	6	2	11	15
NB-Notebooks or paper	5	24	19	.	.	.	1	3	0	3	14	5	2	11	15	1	8	6	9	28	28	1	5	4
OV-Other (commercial) verbal	.	.	.	1	6	2	.	.	.	.	.	.	.	.	.	.	.	.	7	22	28	2	11	6
RB-Reference books	2	10	14	1	6	15	.	.	.	.	.	.	1	6	1	.	.	.	.	.	.	.	.	.
TB-Textbooks	.	.	.	1	6	3	8	28	26	.	.	.	2	11	8	2	15	4	6	19	20	4	21	22
TD-Three-dimensional media	.	.	.	.	.	.	1	3	10	1	5	2	4	22	38	1	8	2	.	.	.	.	.	.
WS-Worksheets	2	10	9	3	17	12	5	17	30	6	27	37	.	.	.	2	15	14	3	9	3	.	.	.
WT-Written tests	1	5	4	1	6	14	2	7	3	4	18	10	.	.	.	1	8	2	1	3	0	.	.	.
Other	1	5	8	3	17	6	1	3	1	1	5	8	2	11	6	1	8	15	2	6	12	2	11	16
NM-No materials used	3	14	6	3	17	5	2	7	3	1	5	2	4	22	6	1	8	1	3	9	2	6	32	13
No agreement	.	.	.	1	6	4	1	3	4	2	9	12	.	.	.	.	.	.	.	.	.	1	5	4
FEEDBACK TO STUDENTS (major)																								
HP-High teacher plus other source	.	.	.	.	.	.	1	3	4	.	.	.	.	.	.	2	15	17	.	.	.	.	.	.
TH-Teacher, high level	1	5	10	.	.	.	7	24	29	12	55	54	4	22	31	6	46	73	10	31	39	7	37	39
TL-Teacher, low level	6	29	26	9	50	47	9	31	23	4	18	24	3	17	10	1	8	2	8	25	11	3	16	13
TM-Teacher, moderate level	8	38	46	6	33	31	1	3	2	2	9	10	4	22	25	.	.	.	5	16	9	2	11	7
Other	2	10	8	1	6	4	1	3	2	1	5	6	2	11	6	.	.	.	1	3	14	2	11	8
NO-No feedback	4	19	10	2	11	18	10	34	40	3	14	6	5	28	28	4	31	8	8	25	28	3	16	28
No agreement	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	11	5
INTERACTION BETWEEN STUDENTS (major)																								
HI-High level expected	3	14	16	1	6	4	1	3	2	1	5	14	4	22	18	1	8	15	.	.	.	1	5	5
LO-Low level permitted	1	5	8	4	22	35	7	24	48	4	18	18	1	6	11	5	38	34	7	22	24	7	37	50
ME-Moderate level permitted	.	.	.	.	.	.	.	.	.	2	9	8	.	.	.	.	.	.	2	6	14	1	5	5
NO-None expected	17	81	76	13	72	61	20	69	46	15	68	61	13	72	71	7	54	51	23	72	63	10	53	40
Other	.	.	.	.	.	.	1	3	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
COGNITIVE LEVEL OF RESPONSES																								
AP-Application level primarily	2	10	14	1	6	3	8	28	27	1	5	6	4	22	22	3	23	26	4	13	15	1	5	8
LO-Lower-level questions only	13	62	62	6	33	14	3	10	3	12	55	49	2	11	6	4	31	21	9	28	22	4	21	13
LP-Lower-level questions primarily	3	14	16	3	17	12	12	41	58	5	23	26	6	33	38	3	23	47	10	31	42	5	26	27
Other	2	10	5	2	11	5	1	3	1	2	9	4	2	11	8	1	8	1	5	16	6	3	16	9
NA-Not apply (no response/product)	1	5	3	4	22	37	2	7	3	1	5	2	3	17	22	2	15	5	2	6	2	3	16	22
ND-Not able to determine/observe	.	.	.	1	6	14	2	7	6	1	5	14	1	6	3	.	.	.	2	6	12	2	11	18
No agreement	.	.	.	1	6	15	1	3	2	.	.	.	.	.	.	.	.	.	.	.	.	1	5	4
ALL SEGMENTS	21	100	100	18	100	100	29	100	100	22	100	100	18	100	100	13	100	100	32	100	100	19	100	100

Figure 1. Activity Structure Map
Fifth Grade Language Arts Lesson



Appendix A

DIRECTIONS FOR SEGMENTING LESSON AND MAPPING ACTIVITY STRUCTURE

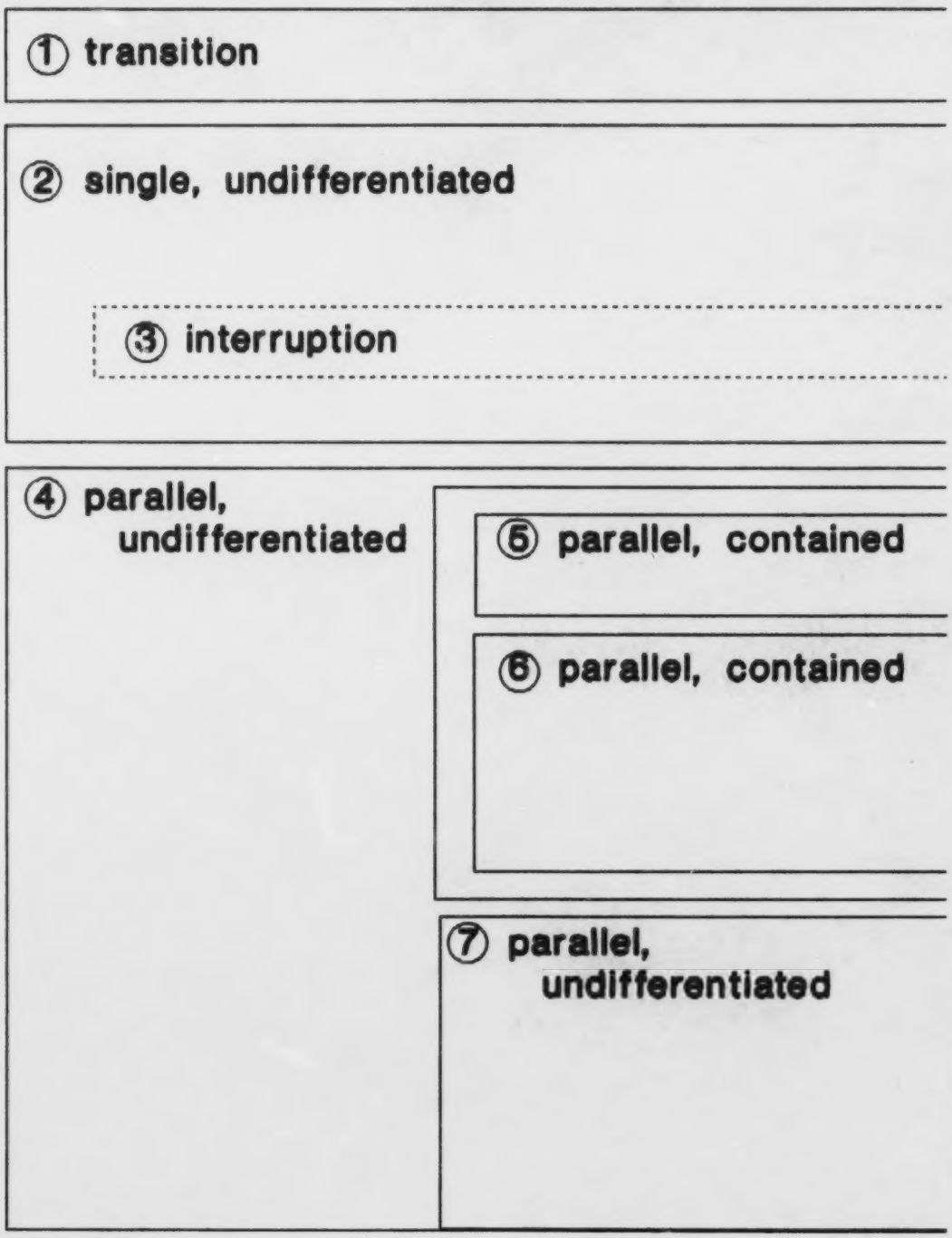
[1] Divide the observed/scrip-taped lesson into meaningful segments. Use the following decision rules:
   a) A segment must continue for at least two minutes (with the exception of an "interruption segment")
   b) A new segment is signaled by changes in <u>two or more</u> of the following <u>five key dimensions</u>:
      --subject matter (e.g. from math to science)
      --location of students
      --group size
      --instructional format
      --materials

[2] Draw a map of the activity structure that <u>includes all segments</u> (including transitions, interruptions, etc.)

[3] For each segment:
   a) Number in temporal order in top-left corner
   b) Indicate the beginning and ending time (hour/minutes)
   c) Provide a brief, descriptive name (e.g. "independent seatwork," "filmstrip/discussion")
   d) Use the conventions on the attached model map to indicate the type of each segment:

      <u>transition segment</u>--two or more minutes spent coming into the room, moving to a new location, putting away materials, etc. (See "Codebook, p. 2)
      <u>interruption segment</u>--any amount of time that the lesson is discontinued due to factors outside the teacher's control--fire drill, PA system, etc. (See "Codebook," p. 2)
      <u>single segment</u>--a segment during which everyone in the class is engaged in the same behavior setting
      <u>parallel segment</u>--one of two or more segments that overlap or occur simultaneously (as when the teacher is instructing a reading group and the rest of the class is doing independent seatwork)
      <u>undifferentiated segment</u>--a segment that cannot be meaningfully divided into contained segments [Note: can be either single or parallel]
      <u>contained segment</u>--a segment that differs from the preceding and/or following segment by a change in the dimensions of <u>materials and instructional format</u>- but not in subject matter, group size, or location (e.g., when the teacher continues the lesson with the same class (or subgroup), but switches from a filmstrip/discussion to monitoring a written test) [Note: can be either single or parallel]

Conventions for Designating Segment Type



Appendix B

(REV 11/10/88)

ACTIVITY STRUCTURE ANALYSIS CODEBOOK[1]

1. FORM TYPE

   AS Activity Structure Analysis

2. TEACHER ID

   ## Teacher identification number [01-25] will be filled in by [Woolever]

3. SUBJECT MATTER OF LESSON

   MA Mathematics

   RE Reading/Language Arts

   SS Social Studies

   SC Science

4. OBSERVER ID

   ## Record your assigned number [91-99] here

5. TOTAL NUMBER OF SEGMENTS IN LESSON

   ## Record total number of segments in lesson (including transitions, interruptions, etc.)--should match total number shown on activity structure map

6. SEGMENT ID NUMBER

   ## Record the ID number of the segment to be described on this form. This number should correspond with the activity structure map numbering system.

---

[1] Codes used on "Activity Structure Analysis Form."
Note: (r)= revised/clarified during or after field trial
(a)= code added during or after field trial

7. SEGMENT SUBJECT AREA

MA Mathematics

RE Reading/Language Arts

SS Social Studies

SC Science

(r) TR Transition (coming in from recess or other class, putting away/getting out materials at beginning or end of lesson, moving to conform to new seating chart, moving chairs/tables, collecting or passing out papers not directly related to last/next segment, "down-time" while AV equipment is set up, etc.)
[record only beginning time, segment type, group size, ending time, and Capsule Description]

(a) RR Routines and rituals (reciting the pledge, lunch count, attendance, making announcements about the schedule or special events, etc.)
[record only beginning time, segment type, group size, ending time, and Capsule Description]

(r) IN Interruption (fire drill, PA announcement, teacher called out of room while students wait for on-going activity segment to continue, etc.)--in all cases, an interruption is beyond the control of the teacher
[record only beginning time, ending time, and Capsule Description]

(r) OT Other: [explain] (teacher dealing with behavior problems/going over rules/trying to get students attention, teacher conferring with a few individuals at the front of the room or out in the hall while rest of students wait, teacher authorized "break time" or "quiet talking until the bell rings")
[record only beginning time, segment type, group size, ending time, and Capsule Description]

8. SEGMENT TYPE

SUN Single, undifferentiated segment

SCO Single, contained segment

POU Parallel with one other segment, and undifferentiated

POC Parallel with one other segment, and contained

(r) PTU Parallel with two or more other segments, and undifferentiated (note: all of the three or more segments occur/overlap at the same moment in time)

(r) PTC Parallel with two or more other segments, and contained (note: all of the three or more segments occur/overlap at the same moment in time)

9. BEGINNING TIME

(r)xx:xx Record actual time the segment began (hour:minutes)--if 1 PM or later, record as "military time" (13:00, etc.)

10. LOCATION OF STUDENTS [major; secondary]

DE Individual desks

SE Individual seats (chairs)--with no table, but chairs may be in a circle, etc.

(r) WT Community work tables (or two or more desks pushed together)--with or without chairs

(r) RG Rug (or floor)

(a) SF Standing at front of room (or group) or at podium (as when giving an oral report, reading vocabulary or spelling list, etc.)

LC Learning center(s)--"dedicated" tables, counters, or bookshelves reserved for independent work by individuals or small groups using materials kept in the center

(r) BD Blackboard/desk or chair --alternating between (as when called to the board to work a math problem, participate in a team learning game, etc.)

LB Library

(a) CL Computer lab (or computer station located in the regular classroom)

OT Other: [explain]

NA Not apply--no secondary

11. GROUP SIZE

(r) ## Actual number of students present at the beginning of the segment (whole class or subgroup)

12. INSTRUCTIONAL FORMAT [major; secondary]

(a) Notes on major/secondary distinction:

[1] If decide that two formats are both "equally" major, code "major" as [OTH] and explain; code "secondary" as [NAP], unless there is a third format that is clearly secondary to the first two.

[2] If the choice is between two teacher-directed activities (such as "teacher-led discussion" and "teacher-led recitation/drill," code as "major" the format that accounted for the greater amount of segment time, and code the other as "secondary." Use the same rule for two student-paced activities.

[3] If the choice is between two student-paced activities that occurred simultaneously (such as supervised student work groups and supervised student independent seatwork), code as "major" the format that accounted for the activity of the greater number of students, and code the other as "secondary."

(r) TRD Teacher-led recitation/oral drill--short question/answer exchanges (students called on answer recall questions, to read aloud, work math problems at the board, review for test, etc.)

TLV Teacher lecture--verbal only (including reading aloud)--may be accompanied by words written on the blackboard

(r) TLN Teacher lecture--including use of one or more sources of nonverbal information (such as pictures, graphs, globes, maps, artifacts, etc.)

TDI Teacher-led discussion--longer exchanges than in recitation and less fact oriented (may ask for ideas, opinions, etc.)

TFT Teacher-directed formal test or quiz taking

(r) TCW Teacher-directed checking of work (homework, seatwork, test, etc.) by all students present in the segment--teacher calls out correct answers but does not expand into discussion, working of math problems at board, etc.

TDE Teacher demonstration (shows "how to" perform a skill, models a process, science experiment, etc.)

(r) TGI Teacher giving instructions (overall plan for the lesson/day, rules, general or daily assignments, reminders)--is procedural, not substantive

(r) TTD Teacher task directions--very specific to next activity (usually followed by individual seatwork, group work, or homework)

TAV Teacher-directed audio-visual presentation (record, TV, video, filmstrip, etc.)

(r) TLG Teacher-led learning game or contest (Jeopardy, spelling "bee," etc.)--may or may not have a "winner"

(r) SIN Student independent seatwork, with no direct teacher supervision or help (in most cases, the teacher would not be in the segment)--students may be reading, writing, constructing, etc.

(r) SIS Student independent seatwork, with teacher supervision (or available to help, answer questions, check work, etc.)--students may be reading, writing, constructing, etc.

(r) SWN Student (or peer) work-groups, with no direct teacher supervision

(r) SWS Student (or peer) work-groups, supervised by teacher

(r) SOP Student oral presentation(s) of own work (short story, social studies/science report, answers to homework, etc.)--may or may not supplement with nonverbal information (pictures, artifacts, etc.)

SRE Student research (students using reference books, in library, etc.)

SRP Student role play or simulation activity

OTH Other: [explain]

NAP Not apply--no secondary

13. PACING [major; secondary]

(r) T Teacher determined (as in lecture, discussion, checking of work, or when teacher sets a strict time limit for completing independent or group task)

(r) S Student determined (independent seatwork, research, giving a report, learning center activities, etc.)--also includes student determination by asking questions during teacher presentation, creating lengthy digressions in responding to teacher questions, etc.

C Student-student--or cooperatively--determined (small group work, math games, common tasks, etc.)

M Mechanical or A/V (film , video, record)

O Other: [explain]

N Not apply--no secondary

XX. TEACHER ACTIVITY [major, secondary]

[Note: This "additional dimension" was added after the data collection phase at the suggestion of the observer/analysts.]

(a) LE Lecture

(a) LD Lead discussion, recitation, learning game, etc.

(a) GD Give directions or instructions

(a) RE Read aloud to class (may stop to show pictures, ask occassional question, etc.)

(a) RM Run machine (video, filmstrip, etc.)

(a) CA Call out answers to homework, seatwork, etc.

(a) LS Listen to students (giving oral presentations, reading aloud, etc.)

(a) SQ Respond to student questions

(a) GT Give test (oral or written)

(a) PH Provide individual help at request of students --students bring work/questions to teacher (at desk, etc.) or raise hand for teacher to come to them

(a) MM Monitor general activity (can include helping individuals) while moving around the room

(a) MD Monitor general activity while sitting at desk (or other fixed location)

(a) TN Teacher not in segment [use for "primary" only]

(a) OT Other: [explain]

(a) NA Not apply--no secondary

14. PUPIL ACTIVITY [major; secondary]
(r) Notes on major/secondary distinction:
[1] If two different activities occur, use relative amount of segment time as basis for decision.
[2] If two different activities occur simultaneously, use relative number of students involved as basis for decision.

	LT	Listen (watch)--to the teacher (as in a lecture or demonstration)
(r)	LA	Listen (watch)--to audio-visual presentation (such as videocassette, record, filmstrip, etc.)
	LS	Listen--to other students(s) (as when giving oral reports)
	RT	Read--textbook (not including trade-books)--includes oral reading at request of teacher
	RO	Read--other printed material
	WQ	Write--answers to questions, math problems
(r)	WO	Write--orignal products (such as report, story, outline, graph, chart, etc.)
	TQ	Talk--in response to teacher questions (as in teacher-led recitation or discussion)
(r)	TS	Talk--to other students (individual or group) to ask question, make plans, share ideas, etc.
	TC	Talk--teacher-led contest or learning game
	TA	Talk--ask questions of teacher
(r)	SC	Self-correct work--may use answers called out by the teacher, printed answer keys, etc.
(r)	TN	Take notes (during lecture, from book, etc.)--would usually include listening and/or reading
	TT	Take test or quiz
	OR	Oral report (give to whole class/small group)
	RE	Research (use reference materials in classroom or library)
(r)	PS	Private study (prepare for test, etc.)--may or may not include writing and/or reading
	OT	Other: [explain] (draw, concrete manipulation, computer, etc.]
	NA	Not apply--no secondary

15. MATERIALS [major; secondary]

(r) Notes:
[1] This category includes materials in the hands of students (textbooks, individual maps, etc.) as well as materials in the hands of the teacher in so far as the students have visual/auditory access to the materials (wall map, words written on chalkboard, plant specimen held up by the teacher, etc.)

(a) [2] Do not code materials that are not actually used in the segment such as textbooks out on the students desks, papers handed out but not discussed/used, etc.

(a) [3] If two materials are "equally" major, code as [OT] and explain; if there is a third, but clearly secondary material, code it as "secondary."
[4] If both the students and teacher use materials--but they are different materials (e.g., teacher uses blackboard/overhead projector and students make notes in notebooks)--code the material used by the teacher as "major" and that used by the students as "secondary."

TB Textbook

WB Workbooks

RB Reference books

WS Worksheets (teacher-made or commercial)

OV Other commercial verbal material (trade books, magazines, pamphlets, newspapers, etc.)

(r) TV Teacher-made verbal teaching aids (vocabulary cards, sentence strips, flashcards, reproduced text or song lyrics, study notes, outlines, etc.)--may be handled by the teacher only or by teacher and students

WT Written tests (teacher-made or commercial)

(r) FG Flat graphics--two-dimensional materials that go beyond words on standard-sized paper (pictures, maps, charts, graphs, posters, diagrams or math problems on the chalkboard, bulletin boards, etc.)--may be teacher-made or commercial

TD Three dimensional media (globes, models, artifacts, etc.)--may be teacher-made or commercial

AV Audio-visuals (TV, videocassette, record, filmstrip, computer, etc.)

(a) SW Student written materials (notes, homework papers, outlines, reports, etc.)

(a)	BP	Blank paper--may be notebook/notebook paper supplied by student
	OT	Other: [explain]
(a)	NM	No materials used (use for major only)
(a)	NA	Not apply--no secondary

16. FEEDBACK [choose one]

Notes:

(a) [1] Does not include "feedback" on behavior that is not task related such as talking out of turn, sprawling on the floor, bothering another student, etc.

(a) [2] Feedback can be on oral or written responses, as well as on products (e.g., student-made filmstrip)--includes feedback that is clarification by teacher in response to student questions.

(a) [2] Does not include implied or intended feedback, such as when it seems likely (or teacher says) papers will be corrected and returned later.

TB Textbook only (students can refer to textbook for help in answering questions, etc.)

MP Manipulative or self-correcting materials (e.g., games, puzzles)

SC Self-check (answer keys provided, "check division by multiplying," etc.)

SF Student feedback--students check or critique each others' work

Note: All of the categories above imply that the teacher is not in the segment and so cannot be a a source of feedback.

TL Teacher-low--occasional, spotty feedback (teacher circulates checking work of a few students, teacher asks a limited number of questions of only a few students during recitation or discussion and gives minimal feedback on each response, etc.)

(a) TM Teacher-moderate--somewhere between "low" and "high"

TH Teacher-high--teacher provides correct answers and makes extended diagnostic comments throughout the segment

LP Low-teacher, plus one or more other sources (i.e., TB, MP, SC, and/or SF)

(a) MP Moderate-teacher, plus one or more other sources (i.e., TB, MP, SC, and/or SF)

HP High-teacher, plus one or more other sources (i.e., TB, MP, SC, and or SF)

OT Other: [explain]

(a) NO None--no information available to student as to correctness of responses or products

17. INTERACTION EXPECTED BETWEEN STUDENTS [major; secondary]

Note: Code interaction that is expected or condoned by the teacher, not that which is merely tolerated because the teacher is unable to control the students' behavior (for example, "interaction" that occurs in spite of overt attempts by the teacher to stop it.)

(r) NO No interaction between students is expected [use for major only]

LO Low levels of interaction are permitted if are work-related and non-disruptive (whisper to a neighbor to get help on an assignment, ask question of student who has given report, etc.)

ME Medium level of interaction permitted but not required (e.g., may talk/work with others to complete work, encouraged to ask questions of other students in teacher-led group, etc.)

HI High level of interaction is expected (is typically the case for group work)

OT Other: [explain]

NA Not apply--no secondary

18. INTENDED COGNITIVE LEVEL OF STUDENT RESPONSES/PRODUCTS
[choose one]

Note: Use supplemental materials on "Bloom's Taxonomy of Cognitive Objectives" as basis for coding.

LO Lower-level (knowledge recall and comprehension) questions, only--this includes recall of facts, definitions, steps in a process; demonstration of comprehension of what has been read or said by teacher; interpretation of maps/graphs; solving of math problems (not including word problems)

LP Lower-level (knowledge recall and comprehension) questions, primarily--but also includes one or more application or higher-level questions

AP Application level questions, primarily--students are expected to apply knowledge in a new/novel situation (such as to solve story or word problems in math or do group problem solving or role play/simulation in social studies)

HP Higher-level questions (analysis, synthesis, and/or evaluation), primarily

(a) ND Not able to determine cognitive level--can't see/hear what kids are working on (e.g, are doing independent seatwork using textbook or worksheet, are working in small group on other side of room, etc.)

(r) PR [not-cognitive] Procedural responses or products intended (correct behavior; grades on test discussed/argued over, etc.)--students do respond to questions, ask questions, or conform to teacher request for "changed" behavior, but responses can't be classified using taxonomy of "cognitive" levels

(r) SA [not-cognitive] Social/affective responses or products intended (work cooperatively with others in a group, share materials, etc.)

OT Other: [explain]

(a) NA Not apply--no responses or products required (e.g., reading textbook, listening to lecture, watching videocassette)

19. ENDING TIME

xx:xx Record actual time segment ended--(hour:minutes)
--if 1 PM or later, record as "military time"

20. CAPSULE DESCRIPTION [open-ended]

In a nutshell, what was this segment about--that is, what was the topic of discussion, the skill practiced, the affective experience provided?

Appendix C

"Context of Teaching Woolever
REV 3/2/87

ACTIVITY STRUCTURE ANALYSIS FORM
(complete one form for each segment)

Teacher Name_____ Observer Name_____

Lesson Subject_____ Lesson Date_____

Segment Number_____ of_____

What changes signaled the beginning of this new segment?
(circle two or more)

subject matter instructional format location materials group size

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1. Form Type [A][S] 2. Teacher ID [ ][ ]

3. Subject Matter of Lesson [ ] 4. Observer ID [ ][ ]

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5. Total Number of Segments [ ] 6. Segment ID # [ ]

7. Segment Subject Area [ ] _____

8. Segment Type [ ][ ][ ] 9. Beginning Time [ ][ ] : [ ][ ]

10a. Location (maj)..... [ ] _____

10b. Location (sec)..... [ ] _____

11. Group Size..... [ ][ ]

12a. Inst. Format (maj).. [ ][ ][ ] _____

12b. Inst. Format (sec).. [ ][ ][ ] _____

13a. Pacing (maj)..... [ ] _____

13b. Pacing (sec)..... [ ] _____

14a. Pupil Act (maj)..... [ ][ ] _____

14b. Pupil Act (sec)..... [ ][ ] _____

15a. Materials (maj)..... [ ][ ] _____

15b. Materials (sec)..... [ ][ ] _____

16. Feedback..... [ ][ ] _____

17a. Interaction (maj)... [ ][ ] _____

17b. Interaction (sec)... [ ][ ] _____

18. Cognitive Level..... [ ][ ] _____

19. Ending Time [ ][ ] : [ ][ ] Date completed_____

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20. Capsule Description (open-ended)